

Newspaper Clips October 3, 2014

Indian Express ND 3/10/2014 P-1

Ex-IIT director likely to be NATGRID chief

VIJAITA SINGH

NEW DELHI, OCTOBER 2

FOUR months after the post of National Intelligence Grid (NATGRID) chief fell vacant, the NDA government may finally settle for an academician to head the ambitious internal security project. Former IIT-Kanpur Director Sanjay Govind Dhande is the top contender for the post, for which five other names are under consideration. The final decision is to be taken by the Prime Minister's Office (PMO).

Speaking to *The Indian Express*, Dhande, who was awarded a Padma Shri in 2013, said, "I believe my name is doing the rounds for the



**SANJAY GOVIND
DHANDE**

post but I have not got any official confirmation yet."

The post fell vacant after the NDA government refused to renew the contract of Raghu Raman, who had a corporate sector background, due to an adverse Intelligence Bureau report that alleged "personal and professional misconduct" on his part. Raman had denied the allegations.

NATGRID was conceived in the wake of the 2008 Mumbai terror attacks and seeks to integrate over 20 categories of datasets from agencies like banks, railways, airlines, income tax department, credit card companies, immigration and others, and make it available to

CONTINUED ON PAGE 2

Ex-IIT director likely to be NATGRID chief

designated law enforcement officers to enable them to track criminals. Its work was still under progress when Raghu Raman left.

Dhande is not new to the security establishment, having been appointed a member of the National Security Advisory Board (NSAB) in 2013 by the UPA government. NSAB, a multi-disciplinary body comprising experts from outside

the government, aids and advises the National Security Council housed in the Prime Minister's Office.

The government has been deliberating on appointing a full-time chief for NATGRID for the past one month, amid a debate over whether it should be headed by a bureaucrat or somebody from the private sector. "It is high time the NATGRID CEO is appointed

as it is an important project from the point of internal security. The government is very close to selecting the name," said a source.

The NATGRID project, which had been dropped from the government's priority list in the last couple of years with its budget also slashed substantially in 2013, is being given a fresh lease of life by the NDA government.

Times of India ND 3/10/2014 P-11

1K US academics to teach in Indian univs

Modi, Obama Signed 'GIAN' Plan In Washington

Vishwa.Mohan@timesgroup.com

New Delhi: After planning to rope in scientists from the Council for Scientific and Industrial Research (CSIR) to take classes in schools and colleges, India is now looking at American academics for teaching in different Indian universities.

The idea is to invite and host up to 1,000 American academics every year to teach in centrally-recognized Indian varsities. The academics — mainly from the fields of science and innovations — may visit India at their convenience. The US agreed to the proposal during the meeting of PM Narendra Modi and President Barack Obama in Washington on Tuesday.

The Indo-US joint statement said: "The President (Obama) welcomed India's proposal to establish the Global Initiative of Academic Networks (GIAN or knowledge) under which India



THE SCIENCE OF COLLABORATION

- **India, US have agreed to cooperate in the field of science and expand joint activities in 'innovative tech'**
- **Modi-Obama committed to partner on 'Digital India' initiative to 'digitally empower Indian citizens'**
- **Countries to increase capacity in cancer research and patient care delivery**

would invite and host up to 1,000 American academics each year to teach in central-

ly-recognized Indian universities, at their convenience."

Officials said the modalities to invite US academics and assign them specific Indian universities for teaching on short-term basis will be worked out by the HRD ministry in consultation with the science and technology ministry that recently came out with a similar plan to use domestic talent for the same task. "The purpose is to expose Indian students to the experience and expertise of the best of Indian scientists and US academicians," said an official.

The science and technology ministry had last month made it mandatory for over 5,000 scientists, working in different central agencies including the country's premier R&D body CSIR, to undertake 12 hours of lecture classes in an academic year in public-funded schools and colleges across the country.

For the full report, log on to www.timesofindia.com

Hindustan ND 3/10/2014 P-9

लड़कियों के लिए फ्री नहीं आईआईटी

देहरादून। इस साल से लड़कियों के लिए आईआईटी प्रवेश परीक्षा का आवेदन फ्री नहीं रहेगा। पहली बार इसके लिए छात्राओं को भी एक हजार का शुल्क देना होगा। छात्रों को आईआईटी प्रवेश परीक्षा जेईई एडवांस का फार्म भरना अब दस फीसदी महंगा हो गया है। आईआईटी बॉम्बे की ओर से जारी किए गये नॉटिफिकेशन में ये बदलाव किए गये हैं।

छात्राओं के लिए आईआईटी में आवेदन करना अभी तक निशुल्क रखा गया था। दो साल पहले परीक्षा का स्वरूप बदला, लेकिन छात्राओं के आवेदन को फिर भी निशुल्क ही रखा गया। इस साल के नॉटिफिकेशन में छात्राओं पर भी आवेदन शुल्क लगा दिया गया है।

New formula for IITs may pile up pressure on students from backward boards

<http://www.hindustantimes.com/hteducation/educationnews/relaxation-of-eligibility-criteria-for-iits-might-pile-up-pressure-on-students-from-backward-boards/article1-1270758.aspx>

To arrive at a formula for admission to the best engineering institutes of the country, the union Human Resource Development (HRD) ministry has changed the eligibility criteria for JEE (Advanced). In a statement released last week, the ministry announced that all aspirants who score more than 75% in their Class 12 board exams will also be eligible to participate in the IIT counselling, provided they clear the JEE (Main) exam.

For the past two years, only those students whose scores lay in the top 20 percentile of their respective boards could make it to the IIT final ranking.

Now, students have to score 75% in their boards or make it to the top 20 percentile, whichever is lower.

The change in the much-feared, widely-taken Joint Entrance Exam for admission to the 16 Indian Institute of Technologies (IITs) was brought about after a discussion with the IIT's Joint Admissions Board (JAB). The ministry plans to launch five new IITs over the next few years.

Last year, the JEE (Main) was taken by almost 16 lakh students, who competed for about 10,000 IIT seats. There was a furore amongst candidates who found that despite clearing JEE (Main) and scoring very high percentages in the boards, they failed to land in the top 20 percentile of the boards thereby missing out on an IIT rank.

According to RK Shevgaonkar, director, IIT Delhi, the step was taken after extensive research in the high school marking scheme across higher education boards in the country. "Over the last two years, we found that there are many variations in the way various boards assess their students. A few boards allot very high scores, while others are stringent in their marking," he says.

"To make sure JEE (Advanced) remains inclusive, we have included the parameter of 75%," he says. While students from national boards like CBSE, ISC and IGCSE are glad that the rules have become lenient, a few experts question the fairness of having a common percentage formula in a country full of vastly different education styles and backgrounds.

THE LOGIC

In 2012, under the direction of the then HRD minister Kapil Sibal, the union ministry had concluded that engineering aspirants were ignoring school academics because of pressure to perform in the entrance exams. A decision was taken to include Class 12 board marks in a way that students focus on both.

"We wanted to ensure that schools are not being ignored in the race to score in JEE. That is why the top 20 percentile of the board formula was devised," says Pradipta Banerji, director, IIT Roorkee.

In the two JEE exams between then and now, it was noticed that students scoring very high board exam marks did not find themselves on the IIT merit list.

"Last year, almost 250 aspirants couldn't participate in the counselling. One aspirant scored very high in the JEE (Main) and secured a spot in electrical engineering at IIT Delhi. However, because his board percentage did not fall in the top 20 percentile, he had to give up the seat," says Banerji.

Many national boards such as the CBSE, ISC and a few state boards – including those of Andhra Pradesh and Kerala — are liberal with their scoring. On the other hand, in states like Bihar, Uttar Pradesh and most north-eastern states, marking is very stringent. This year, for instance, to land in the top 20 board percentile, an Andhra Pradesh board student had to score minimum 92%, while that requirement for the Assam board was 56%.

So until now, if you scored 91% in the Andhra Pradesh board, lay within the top 1.5 lakh of the JEE (Main) and scored well in the JEE (Advanced) exam, you would still not earn an IIT seat. “This disappointed students greatly,” says Aakash Chaudhry, director, AESPL. To preclude this, the Joint Admission Board (JAB) of the IITs, along with the union HRD ministry, relaxed the eligibility to include those who scored minimum 75% in their respective boards.

THE COUNTERVIEW

While the decision has received positive feedback from most circles, a few voices of dissent say that this rule will go against students from underdeveloped boards.

“By relaxing the criteria for students from elite boards like CBSE and ISC, the government has made the JEE even tougher for those from the poorer states,” says Praveen Tyagi, director, IITian’s PACE and PACE junior college, which train students for the JEE exams.

According to Tyagi, as scoring 75% in the national boards is a cakewalk for many students, thanks to the lenient marking scheme, these students can focus their energy towards the JEE competitive examination. On the contrary, aspirants from boards in which even toppers don’t secure 75%, will now not only fight hard to land in the top 20 percentile, but also compete with the already well-prepared students from national or larger boards.

A few voices are also questioning the arbitrary percentage of 75%. “This move will make the students lazy about school. The IITs will not get the best students using this formula,” says Hussain Tambawala, co-founder, MelonPrep, an assessment platform.

Others raise concern about the IIT’s obsession with marks. “JEE only tests Maths and recall value, while an actual work place requires much more. Other than just assessing domain knowledge, soft skills should also be tested,” says Nagendran Sunderarajan, executive vice president, MeritTrac, a testing & skills assessment company.

THE BENEFITS

The earlier criteria demanded a lot from students. “Rote learning is required to score high in boards. To score in the JEE, aspirants have to have conceptual knowledge. Performing exceptionally in both is difficult. Students can now steer focus back to the JEE,” says RL Trikah, director, FIITJEE coaching institute.

Karan Soni, 16, and student of PACE Junior College, Andheri (West) is happy with the decision. “Having a clear aim of 75% in the Class 12 exams makes it easier for me. I do not have to worry about how the others will perform.”

IIT-Guwahati conducts workshop on high-performance computing

TNN | Oct 2, 2014, 01.20 PM IST

<http://timesofindia.indiatimes.com/home/education/news/IIT-Guwahati-conducts-workshop-on-high-performance-computing/articleshow/44085210.cms>

GUWAHATI: The high-performance computing (HPC) group of IIT-Guwahati recently conducted a three-day workshop on graphic processing unit (GPU) programming and applications, 2014, on the campus.

The workshop, jointly conducted with IIT-Bombay and Centre for Development of Advanced Computing (CDAC), was inaugurated by professors H P Khincha and S C Sahasrabudhe along with Sukumar Nandi. It was attended by more than 150 researchers, faculty members, students, industry partners from across the country. Hands-on experiments were performed by participants to understand the nitty-gritty of GPU programming.

Vishal Bharat, an HPC expert, said high-performance clusters play an important role in the development of scientific solutions for new research and will help the northeast to maintain the development pace with the rest of the country.

"The workshop is a great initiative towards making HPC adoption popular in the region. It will facilitate research of applications in engineering disciplines that employs HPC technologies," Bharat said.

HPC group's mission at IIT-Guwahati was to carry out multi-disciplinary research in reconfigurable, parallel and distributed computing as a basis for a long-term partnership and collaboration among industry, academicians and government, focus on research in advanced computer architectures, algorithms, networks and systems, both theoretical and applied, to carry out state-of-the-art research and development with collaborators with maximized synergy and pooled, leveraged resources.

Gaurav Trivedi, assistant professor of the electronic and electrical department at IIT-Guwahati, said, "HPC can help solve real-life problems in a reasonable time which can otherwise take years. In floods and seismic predictions, weather forecasting, oil exploration and live video analysis, use of HPC can be extremely beneficial for the people of the region. It will enable us to train skilled manpower to develop know-how for computationally intensive real life problems."

PSV Nararaj and S Gopalkrishnan, faculty members of IIT-Bombay, delivered the keynote speech in the workshop. Tomas Shejbal and Michal Mandlik from the University of Pardubice, Czech Republic, presented a talk on multi-target tracking using multi-static radar using GPU.

Tribune ND 3/10/2014 P-7

UGC takes clean India campaign to varsities

TRIBUNE NEWS SERVICE

NEW DELHI, OCTOBER 2

Taking a cue from Prime Minister Narendra Modi today, the University Grants Commission (UGC) today launched a scheme saying it would help foster clean university campuses by pressing for four Cs, including clean body and clean mind.

UGC chairman Ved Prakash in the presence of HRD Minister Smriti Irani, rolled a new scheme — Swachh Bharat and Swasth Bharat - to be implemented in institutions of higher learning. The UGC said: "The objective of the scheme is to propel the Swachh Bharat Mission through four Cs - clean mind, clean body, clean environment and clean society - among the youth." There was no clarity on the first two Cs - clean mind and clean body - or ways the UGC will adopt to foster these things among the youth.

The scheme was launched by Irani at Sardar Patel University, Vallabh Vidyanagar in Gujarat. The programme was



PM Narendra Modi and Union Minister M Venkaiah Naidu participate in a walkathon during the clean India campaign in New Delhi on Thursday; and boxer Vijender Singh and actor Amir Khan during the campaign.

PHOTOS: MUKESH AGGARWAL

attended by a large number of teachers, students, administrative officers, mediapersons and the UGC Chairman.

The UGC asked vice-chancellors of all Central, state, deemed and private universities to gear up for cleanliness drives through curricular and co-curricular exercises on their campuses.



"These drives could involve tree plantation, effective waste management, achievement of a plastic-free environment, rainwater harvesting and smoke and drugs free campuses," Ved Prakash said.

Mint ND 3/10/2014 P-15

AN OPPORTUNITY FOR CHANGE

There are two truths about India that we Indians just can't escape. First, for a vast majority of our fellow Indians, living a decent life is a dream punctured by a cruel daily grind. The second is that philanthropy, which literally means having a genuine concern for human welfare and advancement, is central to changing this. Let me add to that an assertion that, notwithstanding our economic or social status, each of us has the incredible opportunity and potential to meaningfully change things. Whether or not you think this is a tall claim is something you should decide after reading this story.

On a warm afternoon last week, a few of us from Mumbai sat with a group of 307 schoolboys, enjoying an enactment of *Julius Caesar*—in fluent Shakespearean English! Post the act, we were led into a technology-enabled classroom, where another group of 8th and 9th standard boys showed us a multimedia presentation of their summer project, in which they went deep into their community to spread the message on issues such as education, sanitation and dowry. They followed up with a SWOT (strengths, weaknesses, opportunities and threats) analysis of their efforts and learnings, with a promise to do better next year. Before you conclude that these were children from one of our elite schools in a metro, doing a SUP (socially useful productive) work project, I would like you to know that these were children from the Musahar (literally meaning rat-eaters, an account of circumstances—not choice) community, enrolled at Shoshit Seva Sangh's school in Patna. Musahars are Maha-dalits, probably one of the most backward communities in the country. If the roll of the all powerful birth dice serves you to be born in one such family, the overwhelming odds are that you will suffer a difficult life—plagued with lack of education, health-care, opportunity and, worst of all, hope.

But wait a minute. What connects this reality from what I described earlier? It is simply a small group of exceptional individuals, from different walks of life, who share the belief that however daunting a social prob-

lem seems, it can still be solved, but that we all have a part to play in that transformation via whatever philanthropy we are capable of. In a country where bureaucrats are criticized for not being imaginative and solution oriented, J.K. Sinha, a senior retired Indian Police Service (IPS) officer, has taken on the challenge of transforming the Musahar community. Realizing that reservations alone will not materially impact a community with less than 3% literacy, Sinha has made providing a high quality education to hundreds of "change agents" from the Musahars his life's mission. Not only is his school educating these children to dream of becoming Indian Administrative Service (IAS) officers, Indian Institute of Technology (IIT) engineers, and talented artists, but it is also instilling in them the desire to remain connected with their community and help transform it from within. Joining Sinha in this journey are a group of wonderful teachers and staff, many of whom could easily find jobs in private schools. In addition to a principal who has just moved from Ujjain to Patna, over the last two years, his mission has infected a few passionate and talented youngsters who just don't believe in status quo. We met Simranpreet Singh Oberoi, a sprightly Sardar who is a Young India Fellow from Delhi, and two wonderful Teach for India Fellows, Ritika and Sen, who have also moved from Delhi and Pune, respectively, to Patna, to join Sinha and his staff in this mission. Vaishali, another youngster who is an Economics graduate from St. Xavier's, Mumbai, and is currently pursuing her M.A in Education from the Tata Institute of Social Sciences (TISS), has been working at the school for the past four months.

That evening, we moved from the dilapi-



Why I Give

AMIT CHANDRA

Managing director of Bain Capital Advisors and a board member of leading companies and NGOs

dated residential-cum-makeshift school building to a state-of-the-art 55,000 sq. ft building in Patna that will be ready to be occupied in about a month. The building will help eventually increase the capacity of "Musahar change agents" from the current 350 to 1,000 children, and also provide the infrastructure for a more wholesome education. What has made this ₹10 crore + capex and ₹2 crore annual budget project possible is the coming together of a number of philanthropists and companies like the Thermax Foundation, Edelgive, HSBC, Rakesh Jhunjhunwala, Indian Oil Corp. Ltd, and a few donors advised by GiveIndia's high net-worth individuals division. Joining the board of this organization with their contribution of time and expertise are two top-notch senior professionals with a deep social orientation, Paresh Parasnisi and Ujwal Thakar. Lest I should forget, there is also a contribution from Manoj, a young Musahar boy from the school. On winning ₹25 lakh on *Kaun Banega Crorepati*, he told Amitabh Bachchan that even though his family needed the money desperately, he felt responsible for uplifting the community and wanted to donate the money instead.

The condition of millions of Musahars, over six decades post our independence is a national shame. There are many such national shames, and closing our eyes to pretend they don't exist isn't a solution, neither is being an armchair critic of the government.

My wife and my personal journey with this project has showed us that each of us has an incredible opportunity to play whatever role we can to convert such shames into national prides. Often, "smaller" contributions like Manoj's are more valuable than

much larger donations from philanthropists or a corporate social responsibility (CSR) contribution, so we shouldn't shy away from making them. We were introduced to this project by a private equity veteran, and have used our network to introduce many new donors to the project. We were also fortunate to play a small role in connecting the dots via our network of non-governmental organizations (NGOs) that resulted in the school attracting some of the passionate youngsters we mentioned. These youngsters, who have chosen this dream over the standard path of material progress, have in turned showed others what we all are capable of once we choose to be philanthropic. Finally, all of us in the business world have very valuable experiences that often help us to be good problem solvers and partners to those driving social change. When we put our experience and networks to use, we are helping build a virtuous cycle. My friends who have now joined the board of this foundation will bring their own perspectives and networks, and help Sinha realize his dream of uplifting the Musahar community in the years ahead.

I firmly believe that from time to time we must take a step back from the bustle of our day-to-day lives and introspect how our country is being shaped, and ask ourselves what our own role is in that journey. I feel if we push our thinking, most of us are likely to conclude that balancing our own material consumption needs, or our desire to provide inheritances to our children, and/or using our time to do good work in the service of society, is the best opportunity we could be blessed with. If not an opportunity, it is certainly an imperative that, if not pursued, will result in the next generations questioning our wisdom and efforts in delivering them a society that is worse in shape than what we inherited from the previous generation.

Views are personal. The author and his wife endeavour to donate 75% of their annual income, and a substantial amount of their time to building and running organizations that serve Indian society.

Mint ND 3/10/2014 P-5

GETTING PRIORITIES RIGHT

As a bigger rush of corporate social responsibility funds is expected, the segments, funds allocated and their effectiveness need a relook

By RUCHIRA SINGH
ruchira.s@livemint.com

MUMBAI

Indian companies' involvement with philanthropy is mainly seen in the form of corporate social responsibility (CSR), but data shows the funds roughly don't match up to the government's benchmark, and experts say disclosures, effectiveness, quality and quantity are inadequate.

India's top 10 companies by market capitalization spent an average of 1.38% of net profit on CSR in the year ended 31 March—lower than the 2% of net profit (average of the last three years) rule set by the new companies law that kicks in from this fiscal year, data from annual reports show.

Most of India's CSR is directed towards four main segments: education, healthcare, community, and livelihood and infrastructure development. However, as a bigger rush of funds is expected, these segments, the funds allocated and their effectiveness need a relook, experts said.

"Since India is in its infancy in terms of CSR, we are going to evolve our own models of how the CSR will have a social impact," said Vasanthi Srinivasan, chair, Centre for Corporate Governance and Citizenship at the Indian Institute of Management, Bangalore (IIM-B).

Other experts said India's CSR should focus on how spending makes an impact, rather than simply allocating funds to sectors the companies consider important. Concerted, studied and long-term measures could improve the country's poor social indicators.

"Donors provide disproportionate funding to a limited number of popular causes, while many other critical needs attract limited support," said a McKinsey and Co. report titled *Designing Indian philanthropy for impact*. Written by Ramesh Mangaleswaran and Ramya Venkataraman, it shows that around 90% of Indian donor contributions are concentrated in fewer than 10 sectors.

McKinsey also said companies mostly resorted to direct interventions that showed quick results rather than indirect ones that fetched results in the long run, and also that CSR activities lacked quality, quantity and service to niches.

Transparency questioned

Companies are known to aggressively push for publicity for their CSR initiatives, but on the other hand, they fall short of levels of disclosure that experts would want in order to analyse CSR.

"Across all the sectors, there was little

transparency when it came to disclosing the amount of money spent on CSR," P.D. Jose, associate professor, corporate strategy and policy, also at IIM-B, said in a paper titled *Corporate sustainability initiatives reporting: A study of India's most valuable companies*, written along with Sourabh Saraf. "Part of this may have to do with the fact that very few companies keep a detailed and auditable record of these finances..." said the paper, which studied India's top 100 firms.

Tata Consultancy Services Ltd, which spent 0.48% of net profit on CSR in 2013-14, **Oil and Natural Gas Corp Ltd (ONGC)**, which spent 1.55% of net profit on CSR in 2013-14, and **Reliance Industries Ltd**, which spent 3.24% of net profit on CSR in 2013-14, did not reply to a questionnaire seeking their opinion on low disclosures, direct interventions and low quantity and quality of CSR.

Infosys Ltd, among the top 10 companies by market cap, which spent just 0.1% of its net profit on CSR in 2013-14, said a part of its CSR cannot be measured.

"Our contribution to CSR is mentioned in the annual report which is beyond ₹9 crore. The others are mentioned as activities even if not monetized," said Sukanya Ghosh, global head, corporate communications, Infosys. To be sure, heavy industries such as metals, mining, cement and chemicals that need social licence to operate and have long gestation periods before their projects start, score better than other sectors on disclosures, the experts said.

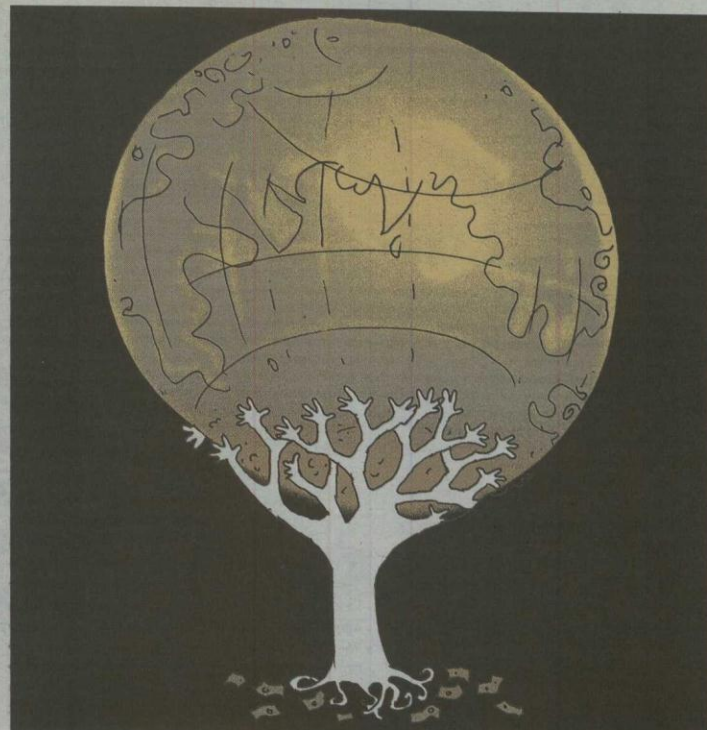
"At Tata Chemicals, programmes which are being implemented by Tata Chemicals Society for Rural Development are all based on the principal of sustainable development," said Alka Talwar, head, corporate sustainability at **Tata Chemicals Ltd**, that spent 2.93% of standalone net profit on CSR in the year ended March.

Similarly, Nik Senapati, managing director, **Rio Tinto India Pvt. Ltd**, said the company was engaged in community work in 15 villages in Madhya Pradesh at its 11-year-old diamond project site even though it has yet to be developed into a mine. He didn't say what percentage of net profit is dedicated to CSR.

Splurge on toilets

Experts said the fund allocations for CSR tended to follow trends rather than any formula derived by social experts.

IIM-B's Srinivasan said education took the largest spending and stood at "No. 1, 2, and 3" in the priority lists of companies. But if the government lays more emphasis on healthcare—if, say, Prime Minister Narendra Modi



JAYACHANDRAN/MINT

delivers a few more strong speeches on toilets—"healthcare can tip education".

Sesa Sterlite Ltd, Vedanta Resources Plc's Indian unit, was one of the first to respond to Modi's call to build toilets in his Independence day speech on 15 August.

Hindustan Zinc Ltd, a Sesa Sterlite company, signed a memorandum of understanding with the Rajasthan government to build 30,000 rural toilets for below poverty line families to be completed in three years, benefiting 80 rural and tribal villages in Rajasthan, the company tweeted on 19 August.

Sesa Sterlite's spokesperson didn't disclose the percentage of net profit the company spent on CSR at the erstwhile **Sesa Goa Ltd and Sterlite Industries Ltd** in 2012-13, a year prior to the companies' merger.

Narendra Singh Tomar, minister of steel, mines, labour and employment, said in a statement last week that he has earmarked ₹100 crore for the CSR fund of public-sector

units (PSUs) urging them to adopt villages for sanitation and cleanliness drives.

ONGC is spending over ₹20 crore on restoration and sanitation at the Taj Mahal in Agra; a company executive said on condition of anonymity that more such monuments could be similarly targeted.

But scepticism prevails among experts, who say toilets could become a symbol of India's CSR gone wrong—in case they turn unsustainable in the long term.

"Sanitation is not just about building toilets, it is about creating a mindset and culture of hygiene," said Srinivasan, who believes CSR spend on healthcare is more urgent than education in India. "This is truly a long-term commitment."

Madhura Karnik contributed to this story.

ALSO SEE

> Donors' interest
> Responsibility quotient

>P6
>P7

'Man in the Moon was born from lava'

Kounteya.Sinha
@timesgroup.com

London: Scientists have identified a huge rectangular feature on the Moon — 2,500km-wide that is believed to be the remains of old rift valleys that later became filled with lava. The dark lunar basin, seen from Earth, produces the “Man in the Moon” effect. Earlier, it was thought to have been created by an asteroid strike.

This discovery of rift valleys for the first time on the moon challenges conventional wisdom about its evolution. Oceanus Procellarum, a vast dark patch visible on the western edge of the moon's near side, has long been a source of mystery for planetary scientists.

Some have suggested that the “ocean of storms” is part of a giant basin formed by an asteroid impact early in the moon's history. But new research deals a pretty big blow to the impact theory.

The new study, based on data from Nasa's GRAIL mission, found a series of linear gravitational anomalies forming a giant rectangle, nearly 2574km across, running beneath the Procellarum re-

NEW THEORY

gion. Those anomalies appear to be the remnants of ancient rifts in the moon's crust. The rifts provided a vast “magma plumbing system” that flooded the region with volcanic lava between 3 and 4 billion years ago. That giant flux of lava solidified to form the dark basalts we see from Earth.

Times of India ND
3/10/2014 P-21

Pluto to get its planet status back?

Fred Barbash

There were once nine planets. Everyone learned them, sometimes aided by a mnemonic: "My Very Excellent Mother Just Sent Us Nine Pizzas." But back in 2006, the International Astronomical Union, arbiter of what is and what isn't a planet, stripped Pluto of its status, saying it was too small to pack sufficient gravitational punch. It was downgraded to a second-class status: "dwarf planet." So then there were eight: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune, or "My Very Excellent Mother Just Served Us Nachos."

Recently, the Harvard-Smithsonian Center held a debate — pro and con — and let the audience vote. The result: "Pluto IS a planet." The debate was around IAU's demands of a planet — that it must be in orbit around the Sun, be round or nearly round, and be shown to have "cleared the neighbourhood" around its orbit, be gravitationally dominant in its area. Pluto was originally kicked out because it did not "clear the neighborhood." THE INDEPENDENT

Times of India ND 3/10/2014 P-21

A bandage that glows while healing

It Indicates Wound's Tissue Oxygenation Concentration Which Is Critical For Cure

Kounteya.Sinha
@timesgroup.com

London: Scientists have created a paint on, see through smart bandage that emits phosphorescent glow for healing. Scientists from Harvard Medical School (HMS) and Massachusetts General Hospital (MGH) have created the world's first bandage that glows to indicate a wound's tissue oxygenation concentration. Oxygen plays a critical role in healing and mapping these levels in severe wounds and burns can help to significantly improve the success of surgeries to restore limbs and physical functions.

The bandage's key ingredient is phosphor — a molecule that absorbs light and then emits it via a process known as 'phosphorescence'.

Phosphorescence is encountered by many on a daily basis—ranging



SMART HEALER

from glow-in-the-dark dials on watches to T-shirt lettering.

The bandage is painted onto the skin's surface as a viscous liquid,

© Steve Hix/Somos Images/Corbis

which then dries in to a solid thin film within a minute. Once the first layer has dried, a transparent barrier layer is then applied on top of it to protect the film and slow the rate of oxygen exchange between the bandage and room air — making the bandage sensitive to the oxygen within tissue.

The final piece involves a camera-based readout device, which performs two functions: it provides a burst of excitation light that triggers the emission of the phosphor inside the bandage, and then it records the phosphor's emission. "Information about tissue oxygenation is clinically relevant but is often inaccessible due to a lack of accurate or non-invasive measurements," lead author Zongxi Li said.

The smart bandage provides direct, non-invasive measurement of tissue oxygenation by combining three simple, compact and inexpensive compo-

nents: a bright sensor molecule with a long phosphorescence lifetime and appropriate dynamic range; a bandage material compatible with the sensor molecule that conforms to the skin's surface to form an airtight seal and an imaging device capable of capturing the oxygen-dependent signals from the bandage with high signal-to-noise ratio.

"How brightly our phosphorescent molecules emit light depends on how much oxygen is present," Li said. "As oxygen concentration is reduced, the phosphor glows both longer and more brightly." "We're developing brighter sensor molecules to improve the bandage's oxygen sensing efficiency," said Emmanuel Roussakis who is leading the sensor development effort.

The team's laboratory research will also focus on expanding the sensing capability of the bandage to other treatment-related parameters.